

## Abstract

### Autostereoscopic multi-user display

An autostereoscopic multi-user display comprising a sweet-spot unit which is  
5 directionally controlled by a tracking and image control device (160), wherein an  
illumination matrix (120) is provided with separately activatable illuminating  
elements (11 .... 56), in addition to an imaging device used to alternatingly image  
active illuminating elements, for making expanded sweet spots (SRI/SR2) visible to  
various eye positions (EL1/ER1, EL2/ER2) of viewers observing alternating images  
10 or a stereoscopic image sequence on a transmissive image matrix (140) with the  
aid of directed beams (B1R ... B5L). According to the invention, the imaging device  
comprises an imaging matrix (110) provided with a plurality of lens elements (111  
115) whose focal length is small in order to image the active illuminating elements in  
an enlarged manner onto the sweet spots (SRI/SR2), and a field lens (171), which  
15 follows the imaging matrix (110), in order to keep the distances of the activated  
illuminating elements between adjacent beams (B1, B2,B4, B5) as constant as  
possible and in order to assist selection of the directions (D1 ... D5) with the  
illumination matrix (120) for the beams.